

WHAT IS CLAIMED IS:

1. A method of correcting defects of pattern film on a surface of a substrate, comprising the steps of:

holding the substrate with the surface facing downward;

blowing material gas for forming pattern film to the surface;

and

irradiating laser light upward at a white defect on the surface to form pattern film over the white defect.

2. The method claimed in claim 1, further comprising the steps of:

irradiating laser light upward at a black defect on the surface; and

vaporizing unnecessary part of pattern film in order to correct the black defect.

3. The method claimed in claim 1, further comprising the steps of:

blowing oxygen gas to the surface;

irradiating first laser light upward to unnecessary part of pattern film on the surface in order to oxidize the top layer of the part;

irradiating second laser light upward to the oxidized top layer in order to peel the oxidized top layer off; and

repeating the steps of irradiating first and second laser light in order to eliminate the unnecessary part of pattern film.

4. The method claimed in claim 1, wherein:

the step of blowing further blows purge gas, which prevents a window for conducting laser light from clouding, and carrier gas, which is included in CVD gas for carrying material gas; and

the main component of the purge and carrier gases is helium gas.

5. The method claimed in claim 1, wherein the substrate is sucked in order to be held at the step of holding.

6. A device for correcting defects of pattern film on a surface of a substrate, comprising:

a holder for holding the substrate with the surface facing downward;

a gas circulatory unit for providing and withdrawing gas including material gas;

a laser irradiator for irradiating laser light upward at a white defect on the surface;

a gas window for blowing material gas on the surface and conducting laser light from the laser source through the gas window to the white defect in order to form pattern film over the white defect.

7. The device claimed in claim 6, further comprising an optical unit for observing pattern film on the substrate.

8. The device claimed in claim 7, wherein the substrate is permeable to light, further comprising a penetrating light source for irradiating light through the substrate to the lower surface of the substrate in order to illuminate with the lower surface.

9. The device claimed in claim 8, wherein:

the sucking unit comprises a top cover permeable to light;
and

the penetrating light source comprises a lens that is designed to compensate the distortion of the lens with reference to the total thickness of the cover and the substrate.

10. The device claimed in claim 6, wherein:

the laser irradiator comprises first laser source for irradiating first laser light for vaporizing pattern film, and second laser source for irradiating second laser light for laser CVD;

the first laser light is irradiated through the gas window at black defects in order to vaporize the black defects; and

the second laser light is irradiated through the gas window at white defects with material gas provided by the gas circulatory unit in order to form film over the white defects.

11. The device claimed in claim 6, wherein:

the gas circulatory unit provides purge gas, which prevents a window for conducting laser light from clouding, and carrier gas, which is included in CVD gas for carrying material gas; and

the main component of the purge and carrier gases is helium gas.

12. The device claimed in claim 6, wherein the holder sucks the substrate in order to hold the substrate.